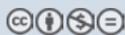


# CADET ENCAMPMENT HANDBOOK

CIVIL AIR PATROL CADET PROGRAMS



<b>PART 1 WELCOME TO ENCAMPMENT</b>	2
W 101 Honor Agreement	7
W 102 Chain of Command	8
<b>PART 2 LEADERSHIP &amp; CHARACTER KNOWLEDGE</b>	
L 201 Core Values	10
L 202 The Cadet Oath	12
L 203 The Warrior Spirit	14
L 204 Discipline	16
L 205 An Idea of Leadership	18
L 206 Servant Leadership	20
L 207 Teamwork	23
L 208 Leadership Wisdom	26
<b>PART 3 AEROSPACE KNOWLEDGE</b>	
A 301 Military Aircraft	28
A 302 Aerospace Careers	37
A 303 Basic Anatomy of an Aircraft	38
A 304 Basic Anatomy of an Instrument Panel	39
A 305 A Day Without Space	40
A 306 Aerospace Power	42
A 307 Poem “Voyage to the Moon”	44
<b>PART 4 CAP HISTORY &amp; CADET LORE</b>	
H 401 CAP’s WWII History	46
H 402 CAP Trivia	48
H 403 Comic “Smilin’ Jack”	49
H 404 Cadet Program Aerospace Pioneers	50
H 405 Alumni of Honor	52
<b>PART 5 DDR KNOWLEDGE</b>	
D 501 Anti-Drug Ad Messages	54



Some Rights Reserved. Copyright 2013 by Civil Air Patrol. This work is licensed under the Creative Commons Attribution, Non-Commercial, No Derivative Works 3.0 United States License. For details see [creativecommons.org](http://creativecommons.org).

Much of this handbook is excerpted from CAP’s *Learn to Lead* series. See those texts at [capmembers.com/L2L](http://capmembers.com/L2L) for the academic citations underpinning this handbook’s teachings.



June 2014

PART  
1

# WELCOME *to* ENCAMPMENT





## WELCOME to ENCAMPMENT

**Encampment challenges you.** It pushes you so you'll grow. Are you self-disciplined? Can you lead? Can you truly work as a team? These are some of the questions the staff will be helping you to answer for yourself as you participate in awesome, hands-on activities and tours. Specifically, our goal is to inspire you to

- develop leadership skills,
- learn about aviation, space, and technology,
- commit to a habit of regular exercise, and
- live the Core Values.

As cadets of the U.S. Air Force Auxiliary, your training will emphasize not only leadership and character but fitness and STEM (science, technology, engineering, and math) as you explore career opportunities in those areas and so much more. Welcome, and **SEMPER VIGILANS!**

### Graduation Requirements

To graduate and earn the Encampment Ribbon, you must participate actively for at least 80% of the encampment program, adhere to the Core Values, and complete all academic assignments to the satisfaction of the encampment staff. If you voluntarily depart for home early (except for a serious health issue or family hardship) or are expelled for disciplinary reasons, you do not graduate and do not earn the Encampment Ribbon. (See CAPP 52-24 for specifics.)



## People to Help You

**Cadets Support Cadets.** You do not face encampment’s challenges alone. As discussed on pages 14-15, your “wingman” will help you with daily encampment life, and your element leader will, too. Your flight is supposed to function as a team, so look to your flight mates for support. If your fellow students lack the experience or know-how, turn to your flight staff – the flight sergeant, flight commander, and training officer(s) for guidance.

**Support from Adults.** Know that the training officer is the adult leader available to you if you’re struggling with something that you don’t want to discuss with another cadet. *You can see your training officer any time that you need to*, and if your encampment has a *chaplain* on staff, you can see that person any time, too.

## Safety

If you see something that does not look safe to you, speak up! Any cadet may sound the Air Force command, “**KNOCK IT OFF**” if he or she thinks someone might get hurt.

When you hear “knock it off,” immediately stop what you are doing and await further instructions.

Safety is serious business. No one wants to get hurt, and if someone is injured, the team might not complete its mission. Pay special attention to what your wingman is doing and how he or she looks or feels because you have a special duty to keep your wingman safe.

---

## The MILITARY-STYLE TRAINING ENVIRONMENT

Encampment life is a regimented life. You'll be challenged by a carefully designed, age-appropriate, military-style training environment. Surveys show that the opportunity to thrive in a strict, Air Force-like setting is among the top reasons young people become cadets.

**What it's Like.** Encampment's emphasis on military bearing, saluting, and discipline is ratcheted up a few notches than what you're used to at ordinary squadron-level cadet activities.

Therefore, you will sometimes feel stressed. You will hear commands issued more emphatically and more loudly than usual. You will feel a sense of urgency to follow orders and complete your duties. Staff will sometimes lean into your personal space, strongly make eye contact, and challenge you to exceed their expectations.



**Feelings of Doubt.** Early in the encampment, you may feel overwhelmed and wonder, "What am I doing here? I'm not sure if encampment is right for me." These feelings

are normal. Thousands of cadets have struggled in the first few days of encampment, only to surprise themselves by their tenacity. They hang in there. They turn to their wingman and leaders for support. Before long, they're succeeding. Before long, they're having an awesome time. On graduation day, the cadets who had wondered if they would give up admit that they wish encampment would never end.

---

(Top) The Air Force Academy is famous for its strict discipline. (Bottom) CAP cadets experience a similar, but age-appropriate, style of training.

**Hazing is Prohibited.** While the military-style training environment challenges you, CAP does not tolerate hazing. You will **never** be belittled, made fun of, called names, sworn at, hit, or physically intimidated. The cadet cadre are servant leaders who set high standards, but are not bullies. "Respect" is a Core Value. No one will get in your face and scream at you. No one will dishonor your dignity as a person. No one can force you to do something your conscience tells you is morally wrong. If you experience any of these marks of hazing or see a fellow cadet being hazed, see your training officer right away.



(Above) There are challenges to conquer at encampment. (Left) And a lot of friends and fun.



## KEEP CALM UNDER PRESSURE

Scientists say that your body's nervous system cannot be calm and in crisis mode at the same time. By practicing relaxation techniques, you can fool your body such that stress hormones stop firing and a relaxed feeling takes over.

One way to do this is through controlled breathing. While standing at attention, focus your mind on your breathing. Feel your chest rise and fall, and try to think of nothing else. Keep your knees loose - don't lock them!

Perhaps outside thoughts may intrude, but just ignore them 10 times in 10 seconds if you have to. The goal is to turn-off the thoughts racing through your mind so that you can slow down, give your mind a rest, and regain a measure of calmness.



## KNOWLEDGE WORK & MEMORY WORK

At the start of each section, you'll see a blue box like this one.

Learning objectives are listed inside those boxes. Your leaders could hold you responsible for knowing that (or selected) material by a certain time. Use this table to keep track of those assignments.

Be ready for oral quizzes on those knowledge and memorization items.

## KNOWLEDGE WORK & MEMORY WORK

TASK	DESCRIPTION: Section number, assignment, page number	DAY DUE	TIME DUE
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			



## W 101 HONOR AGREEMENT

I, Cadet \_\_\_\_\_, CAP, have come to encampment to experience the full range of opportunities and challenges available in the CAP Cadet Program. I understand that encampment offers me a chance to

- develop leadership skills,
- learn about aviation, space, and technology,
- demonstrate my commitment to physical fitness, and
- live the Core Values.

I understand that to accomplish those goals the encampment is run in a strict, military-like training environment, and therefore I pledge to:

\_\_\_\_\_  
INITIALS consistently display a high level of self-discipline, military bearing, and military customs and courtesies.

\_\_\_\_\_  
INITIALS maintain my quarters and personal gear in a constant state of readiness for inspection.

\_\_\_\_\_  
INITIALS be open to new experiences and actively participate in all classes, tours, activities, academic assignments, and calisthenics and sports.

\_\_\_\_\_  
INITIALS live in a community with my fellow cadets, rise for First Call at\_\_\_\_\_, turn-in for Taps at\_\_\_\_\_, and, to develop my self-reliance, go without phones and the Web.

\_\_\_\_\_  
INITIALS obey all CAP rules and regulations in fact and spirit, and to cooperate with the cadets and seniors who are appointed to lead, train, and assist me.

\_\_\_\_\_  
INITIALS help my fellow cadets succeed as I put service to my team before myself.

I accept encampment's challenges and pledge to meet them with my very best effort. I am ready to train and I hereby request admittance to my Flight.

---

 CADET

---

 FLIGHT COMMANDER

---

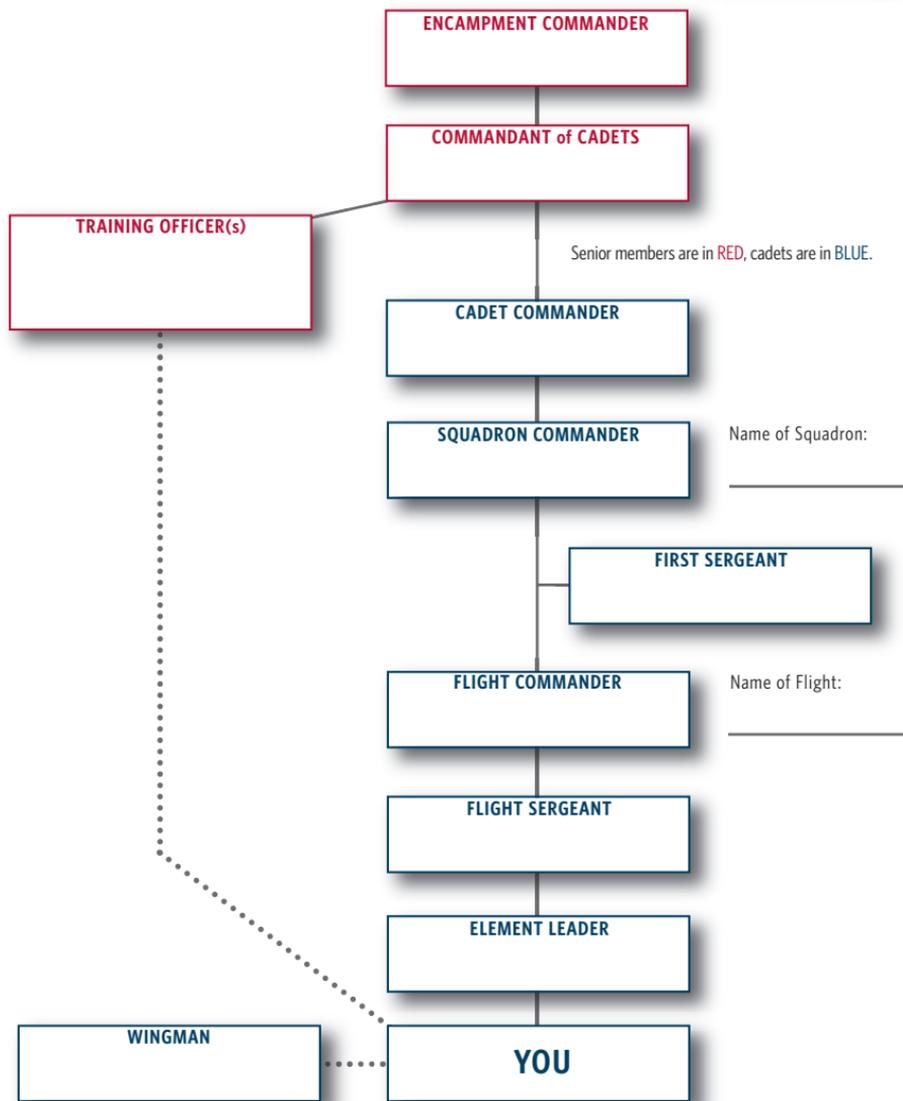
 TRAINING OFFICER

**GOALS**

Fill-in the blanks with the grade and name of each person in your chain.

Memorize the names, grades, and titles of each individual in your chain.

## W 102 *The* CHAIN of COMMAND



PART  
2

# LEADERSHIP & CHARACTER KNOWLEDGE



## GOALS

Name the four Core Values.

Give examples of how each Core Value applies to you as a cadet.

# L 101 THE CORE VALUES

The warrior spirit comes down to doing the right thing. But what is that thing? Which values should we give priority to so that our lives are honorable? Borrowing from the Air Force, CAP has identified four Core Values to guide every cadet and officer. The Core Values are the price of admission to CAP.



What are “Core Values”? The Core Values are the four basic qualities CAP expects all members to display at all times: Integrity First, Volunteer Service, Excellence in All We Do, and Respect. They are to guide how we live and perform CAP missions. Our success in everything we do hinges on how well we embrace the Core Values. An individual’s character can affect the team’s success.



List every great quality you want to see in a cadet or in a leader. Put the list aside, and when you come back to it you will think of even more great qualities to add. It would be impossible for even one hundred Core Values to describe the rich traditions of cadet life. Our four values represent the fundamentals and are easy to remember. They are like road signs giving us basic directions on our journey.



To truly embrace the Core Values, we need to consider what each one means:



## THE CORE VALUES EXPLAINED

**Integrity First.** Integrity is the willingness to do what is right, even when no one is looking. Think of it as a moral compass or inner voice guiding your every decision. People of integrity are honest and morally courageous. They can be counted on to fulfill their responsibilities, even in difficult circumstances. They don’t blame others for their mistakes, and they don’t take credit for someone else’s work. Integrity is the cornerstone of military service.



**Volunteer Service.** This Core Value teaches us that the needs of the team and of the people we help take priority over our individual wants and desires. To put it even more simply, Volunteer Service is about “selflessness.” It’s the difference between “giving” and “taking.” This Core Value is especially important because CAP is entrusted with performing life-saving missions. Volunteer Service is also evident when experienced cadets mentor and train new cadets.

**Excellence in All We Do.** Being a cadet means you value Excellence. No matter what challenge is facing you, you will give it your best effort. If you value Excellence, you demonstrate teamwork and know that teams accomplish more than individuals do. Moreover, to display this Core Value, you must make a commitment to continuous self-improvement – you must study, train, and work to better yourself and fulfill your potential in every aspect of your life.

**Respect.** The Core Value of Respect challenges cadets to defend human dignity. People who are respectful treat others as they would like to be treated. They are polite and kind. They assume their friends and even strangers act in good faith, so they give them the benefit of the doubt. Likewise, a respectful person understands that each individual is unique and accepts them for who they are, in a spirit of tolerance.



**INTEGRITY**



**VOLUNTEER SERVICE**



**EXCELLENCE**



**RESPECT**



---

### An Anti-Drug Ethic

To really live the Core Values, you have to be drug-free. Integrity . . . because drug use is against the law. Excellence . . . because drugs slow you down. And Self-Respect . . . because drugs can poison you. SEE PAGES 54-57 FOR UNFILTERED FACTS ABOUT DRUGS.

## GOALS

Recite the Cadet Oath from memory.

Explain what each phrase in the Cadet Oath means, in your own words.

## L 102 THE CADET OATH

An oath is a solemn promise. Oaths are usually made in public and involve promises that serve a public good. When you swear an oath, you put your personal honor and reputation on the line.

When someone has a serious responsibility to fulfill, we need to hear them acknowledge the importance of their duties. When you testify in court, you swear to tell the truth. When the president assumes office, he or she swears an oath. Members of the military swear an oath when they enlist or are commissioned. Likewise, CAP cadets have an oath of their own.

Take a close look at the [Cadet Oath](#):

*“I pledge that I will serve faithfully in the Civil Air Patrol Cadet Program ...”* Being faithful means being

true and doing what you say you will do. In this first line of the oath, you are saying that you understand what you are getting yourself into by joining CAP, and that you are freely choosing to become a cadet.

*“... and that I will attend meetings regularly, ...”* While you may need to miss a few meetings once in a while due to other commitments, you pledge to attend squadron meetings on a regular basis.

*“... participate actively in unit activities, ...”* You promise to be enthusiastic about what cadets do. You’re joining CAP because you are looking forward to great activities, and naturally you intend to take part in them.

### THE CADET OATH

“I pledge that I will serve faithfully  
in the Civil Air Patrol Cadet Program  
and that I will attend meetings regularly,  
participate actively in unit activities,  
obey my officers,  
wear my uniform properly,  
and advance my education and training rapidly  
to prepare myself to be of service  
to my community, state, and nation.”

*"... obey my officers, ..."* Here you acknowledge you don't have all the answers. You realize there are people who have more experience than you, and you'll follow their guidance. You promise to listen to your leaders. But if an officer were to tell you to do something morally wrong, you would not have to obey him.

*"... wear my uniform properly, ..."* There is a right way and a wrong way to wear the uniform. Recognizing this, you promise to represent CAP and the US Air Force well by always looking sharp in uniform. Because the cadet uniform is similar to the Air Force uniform, you know you have a special obligation to live up to the ideals it represents.

*"... and advance my education and training rapidly ..."* The word "cadet" can be defined as "a young person in training to become a leader." Therefore, a cadet's primary job is to learn how to lead. In the Cadet Oath you promise to take that duty seriously.

*"... to prepare myself to be of service to my community, state, and nation."* CAP is a volunteer organization whose main purpose is community service. Everything we do is altruistic, meaning that it is for the benefit of others, not ourselves personally. By participating in cadet activities, you gain from those experiences, but the overall goal is to build yourself into a responsible citizen, so America benefits too. America needs leaders who look out for the needs of the community, not their own selfish desires.



(Left) Young men and women swear their Oath of Enlistment as they enter the Air Force.

(Right) New cadets swear their Cadet Oath as they enter CAP.

## GOALS

Explain what the “warrior spirit” is.

Name your wingman and explain what you might do to help him or her.

## L 103 THE WARRIOR SPIRIT

The warrior spirit is a condition of the heart.

The Air Force describes it as tough-mindedness and tireless motivation.

A warrior is someone whose strong character enables him or her to make sacrifices for the team and achieve long-term goals. Warriors defend something valuable – their personal honor. Having a warrior spirit means that you make a promise to yourself that you will not lie, cheat, or steal, even if everyone else commits those wrongs.

Why does the warrior spirit matter? Like a muscle, the warrior spirit grows stronger as you exercise it. By overcoming small challenges in your daily life, you strengthen your character so that when something unnerving happens to you one day, you’ll be ready for it emotionally and spiritually. Some of the benefits of striving for a warrior spirit include:

**Clear Conscience.** Break promises and soon you’ll see yourself as being a liar. Guilt will weigh you down. Having a warrior spirit means your conscience is clear. You’ll enjoy freedom from shame and embarrassment and you’ll take pride in your actions.

**Good Reputation.** People who display a warrior spirit build good reputations. They earn trust and respect by



---

(Right, Bottom) Elite Air Force pararescuemen descend from a helicopter in Iraq. (Right, Top) A cadet conquers a rock wall at encampment. Both images illustrate the “warrior spirit.”



doing the right thing, and their leaders take note. A good reputation opens doors that are closed to people whose sense of honor is questionable.

**Environment of Trust and Respect.** If you and the people around you display the warrior spirit, you will be creating an environment of trust and respect. This translates into a life that is less stressful and more rewarding. Friendships will be stronger. You and the people in your circle will be more successful because the warrior spirit is motivating everyone to do their best.

## RELY ON YOUR WINGMAN

Inspired by a “warrior spirit,” you’re charging hard at what you do. You’ll need someone you can trust to watch over you. Who helps you look after your physical, mental, and spiritual fitness? Your wingman.

In fighter pilot jargon, a wingman flies next to you in combat. In everyday life, a wingman is a friend who helps you make good decisions. It’s the Air Force version of the buddy system.

“The wingman is absolutely indispensable,” according to the legendary fighter ace, Gabby Gabreski. “I look after my wingman, he looks after me. We work together. We fight together.”

Pair up with another cadet. Be each other’s wingman.



(Above) Ace Gabby Gabreski and a P-47D *Thunderbolt* similar to his own.

## GOALS

Recite the definition of “discipline” from memory.

Name four things you can do to develop your self-discipline.

## L 104 DISCIPLINE

“Discipline” can be traced to the word *disciple*, which is a person who follows his or her teacher’s instructions. Discipline enables you to act properly and achieve the right goals.

*Self-discipline can be defined as the ability to direct your thoughts, emotions, and actions toward a meaningful purpose.* In short, self-discipline is willpower. It is a deep sense of commitment to a standard of excellence. If you do not control your emotions, your emotions will control you.

Self-disciplined leaders think before they act. They choose to resist sudden impulses. They stay cool and collected, even in stressful situations. In short, their discipline grants them freedom, the liberty to accomplish their goals.

### FOUR PRACTICAL STEPS to DEVELOP SELF-DISCIPLINE

**Watch Yourself.** Are you working toward your goals, or are you distracted? To be self-disciplined, you have to watch yourself constantly. Are you catching yourself doing the right things, or are you too often catching yourself succumbing to temptations?

Learning to stand at attention builds self-discipline. You have to stay immobile. You can’t talk. You have to keep your posture just right. You can’t fidget. You can’t let the fact that your flight sergeant is standing right in front of you and looking you in the eye be a distraction. And so you have to “watch” yourself and be careful to keep your mind in control of your behavior.



**Excitement vs. Determination.** If you simply focus your mind and your energy will you automatically reach your goals? Probably not. Excitement is good for short bursts of energy to get you started, but it takes perseverance to reach big goals. Disciplined people have a habit of focusing on short-term goals along their way to a bigger goal.

Earning the Spaatz Award takes more than excitement, it takes determination. At first, most cadets have the enthusiasm to earn the Spaatz, but that excitement wears down and isn't strong enough to carry them the 3 or 4 years to Spaatz. But if a C/Amn focuses on making C/A1C, then C/SrA, and so on, that cadet has a better chance of reaching C/Col because those intermediate goals lend themselves to discipline and determination. Take encampment one day at a time, one class or one hour at a time, and you'll make it to graduation.

**Tenacity.** Real winners never quit. That's tenacity, the ability to keep going despite obstacles and frustrations.

If you tackle an obstacle course during encampment or if your flight bombs its first big inspection, you'll have an opportunity to show tenacity. On an obstacle course, maybe The Wall will seem too much for you. Will you keep trying, or just give up? If your flight fails an inspection today, does that mean you'll fail tomorrow?

**Celebrate Success.** A good way to develop discipline is through "positive reinforcement." When you've caught yourself doing things right for a while, give yourself a round of applause. Treat yourself.

At encampment, you'll see this with the daily Honor Flight awards. Those awards recognize the flights that are performing well and they encourage the flight to keep going. A little bit of recognition or granting yourself a personal treat of some kind helps you keep going.

---

**(Opposite)** This Air Force MTI has the self-discipline to look someone in the eye without cracking a smile. How about you? **(Below)** There's only one way to wear the uniform: ***the right way.*** A disciplined cadet looks this sharp every day.



## L 105 An IDEA of LEADERSHIP

The Air Force defines leadership as: ***“The art and science of influencing and directing people to accomplish the assigned mission.”***

### “THE ART AND SCIENCE...”

Leadership is an art because it requires imagination and creative skill. No two leaders approach a challenge exactly alike - there are usually several “right” answers to a leadership problem. Further, leaders bring their unique personality to their work and express themselves as individuals. Because how a leader acts is a matter of style and personal judgment, leadership is an art.

But leadership is also a science because it is an academic subject requiring careful study, observation, and experimentation. Much of what we know about leadership is rooted in social sciences like psychology, political science, and sociology that try to use the scientific method to study why people behave as they do. Scholars look for cause and effect in leadership the same way scientists analyze chemical reactions.

As an art, leadership gives leaders freedom to express themselves. As a science, leadership demands that leaders think before they act.

### “... OF INFLUENCING AND DIRECTING PEOPLE...”

A mechanic works with screwdrivers and wrenches. An accountant works with numbers. But a leader works with people. Leaders find a way to affect people, to get them to do something. A leader may try to shape how the team thinks so its members see the world in



a new way. Or a leader may appeal to emotions in hopes that teammates change how they feel toward something. And in some cases, a leader may simply tell someone to do something, relying on pure authority. But in the end, leaders care mostly about changing behavior. They try to shape someone's thoughts or feelings so that that person goes and does something.



### "...TO ACCOMPLISH THE ASSIGNED MISSION."

What is that something the leader wants their people to do? The mission. The mission is the reason why the team exists.

When expressed in broad strokes, a mission defines the team's long-term goal. Google's mission is to "organize the world's information." Apple's is to "spearhead the digital revolution." Although these slogans lack detail, the mission statements explain in simple words what those companies aim to do.

Missions can be small in scope, too. "Lead the cadets safely through a compass course," is a mission a cadet NCO might be assigned one afternoon.

Accomplishing the mission is the leader's biggest responsibility.

---

(Left) As an art and science, leadership requires study. You've gotta think to lead well. (Right, Top) Influencing and directing people means you need good communication skills, like this Army NCO speaking to a cadet group. (Right, Bottom) The leader's ultimate goal is to accomplish the mission, like this ground team is doing.



## GOALS

Explain what “servant leadership” means, in your own words.

Explain how George Washington showed servant leadership.

## L 106 SERVANT LEADERSHIP

Leadership is not about controlling people, but serving them. This is one of the core beliefs of a philosophy known as servant leadership. Servant leadership is when the leader sees himself or herself primarily as the team’s servant. The goal of servant leadership is to enhance the growth of individuals in the organization and increase teamwork and personal involvement. Consider this perspective:

*“The servant-leader is servant first... It begins with the natural feeling that one wants to SERVE, to serve first. Then a [willful choice] brings one to aspire to lead...”*

*That person is sharply different from one who is a LEADER first, perhaps because of the need to [fulfill] an unusual power drive or to acquire material possessions...”*

It is easy for new leaders to become arrogant, to show off their rank and delight in bossing people around. (Do people who are full of themselves inspire you or turn you off?) So much of what we think we know about leadership is based on old concepts of power, not on the leader’s potential to help individual people and the team succeed. Servant leadership, then, is the new leader’s vaccine against becoming self-centered or a bully. It focuses the new leader on the team’s needs.



(Top) A cadet uses the fireman’s carry to help a “wounded” teammate, exemplifying servant leadership. (Bottom) Making subordinates carry you about in a sedan chair is the opposite of servant leadership – the seated woman ought to be serving the team.

## EXAMPLES OF SERVANT LEADERSHIP

For example, an NCO informed by the idea of servant leadership will not use his or her rank to take a position first in line to eat, but rather will eat only after the team has been fed. The airmen come first. When conducting a uniform inspection, the servant-leader's goal will be to help each individual meet CAP's high standards, not try to intimidate the airmen or play "gotcha." Servant leadership is not about a personal quest for power, prestige, or material rewards.



Christianity gives us a classic example of servant leadership that leaders from all backgrounds can appreciate. Jesus tells the apostles,

*"You know that among the Gentiles those whom they recognize as their rulers lord it over them, and their great ones are tyrants over them. But it is not so among you [the apostles]; but whoever wishes to become great among you must be your servant, and whoever wishes to be first among you must be slave of all."* Mark 10:42-45, NRSV

## SERVANT LEADERSHIP IN THE MILITARY

The military, with its top-down hierarchy and chain of command could possibly emphasize rank too much. Pulling rank is often seen as a lazy, immature, and counterproductive way to lead. A proper reading of the NCO Creed and the Core Values will show that servant leadership is the way to go. Therefore, servant leadership, and the idea of caring which it is built upon, is a natural fit for the Air Force. "Caring bonds us together," according to a former Chief Master Sergeant of the Air Force. "When caring is lacking... mission failure is a very real possibility."



---

(Top) Jesus washing the disciples' feet is one of the classic examples of leader as servant. (Bottom) Teaching and mentoring, like this NCO coaching the airman shooter, are examples of servant leadership in action.

## SERVANT LEADERSHIP IN ACTION

### THE LEADER, THE WORKER, & THE BYSTANDER

Picture a country road leading through a wilderness to a river. A dozen soldiers are trying to build a bridge, but there are not enough men for the job. It's 1776 and the Revolutionary War is underway.

Now comes on a beautiful stallion an impressive, serious looking man. There is something powerful about the way he carries himself. He commands respect.

"You don't have enough men for the job, do you?" asks the man on horseback.

"No, we don't," answers the lieutenant in charge of the work detail. "The men will need more help if we are to finish the bridge on time."

"I see," replies the man on horseback. "Well, why aren't *you* helping them? You are just standing back and watching them work."

"That, sir, is because I am an *officer!*" snaps the lieutenant. "I *lead*, I don't *do*."

"Indeed." The man on horseback then dismounts, tosses aside his cap, and rolls up his sleeves. He labors with the men under the hot sun for several hours until at last, drenched in sweat, he proclaims the job done.

"Lieutenant," says the man as he mounts his horse and prepares to depart, "the next time you have too much work and not enough men, the next time you are too important or high ranking or proud to work, send for the Commander in Chief and I will come again."

It was General Washington.



---

(Top) George Washington possessed so much moral authority because he was humble and a real servant leader. (Bottom) You don't need a lot of leadership training to become great. According to Rev. Dr. Martin Luther King, all you need is a willingness to serve.

## GOALS

Name the four attributes of teamwork.

Name the four qualities of team players.

Name the four stages in the team life cycle.

## L 107 TEAMWORK

A team is a collection of individuals who are committed to working together to achieve a common goal. Let's take a closer look at what makes a team a team.

**Team Diversity.** Because a team is comprised of individuals, everyone on the team is unique and brings their own special talents and personality. Great teams use individuals' special skills to their advantage. One person's strength helps overcome another person's weakness.

**Team Leadership.** By being so committed to working together, team members look to one another - not just to their boss - for leadership. They pass information to each other, encourage fellow teammates, and solve problems together, rather than waiting for the leader's directions.

**Team Spirit.** One thing that makes being on a great team special is team spirit. Teammates feel something deep down connecting them to the team. The best teams become like extended families. This sense of team spirit is important because it builds trust, making team members eager to cooperate and not afraid of making compromises as they work together.

**Team Power.** Great teams defy the laws of math, making  $2+2=5$ . They produce synergy, the idea that by working together they can achieve more than each individual could on their own.



(Top) The Avengers are a great team partly because each member is unique. Their diversity makes them well-rounded and capable of meeting any challenge.

(Bottom) Working together, these seven airmen can handle the huge flag, but on their own, as individuals, not one of them could do the job. That's synergy.

---

## QUALITIES OF GOOD TEAM PLAYERS

Now we know what a team is. But what does it take to become part of a team? Outlined below are four characteristics of good team members.

**Self-Discipline.** Teams rely on their members to direct and control their own actions. Effective team members possess a self-discipline that makes them dependable. They have the discipline to follow directions. They come to the team ready to make a contribution.

**Selflessness.** Teamwork always requires sacrifice. A willingness to put the team's needs ahead of your own is the price of admission onto any great team. Selflessness also requires team members to cooperate. They must be willing to help one another and the leader complete the team's work.

**Enthusiasm.** If one member of the team has a positive attitude, that sunny outlook will spread to the other members of the team. Enthusiasm is contagious. Take responsibility for your own enthusiasm. Recognize that positive people are positive because they choose to be that way.

**Loyalty.** None of these traits matter if you give up on the team, or even worse, betray the team or its leader. A team member must be loyal – faithful to the people on the team, supportive of its leader, and committed to the team's mission. Loyalty is a power that holds the person to the team in good times and bad.

---

(Top) The heroes of 9/11's Flight 93 displayed incredible selflessness in forcing that hijacked airliner down, even though the crash would cost them their lives. (Bottom) Could anyone hope for a teammate more loyal than a military working dog?



## THE TEAM'S LIFE CYCLE

What's it take to transform a bunch of people into a unified team? Teams typically pass through four stages before becoming effective.

**Stage 1. Forming.** When a group first comes together, they're in chaos. Everyone is pointed in a different direction. People may not know what to expect. That uncertainty makes some fearful. And having not yet invested time or energy in the team, its members are apt to have a limited commitment to its success.

**Stage 2. Storming.** As the team begins to take shape, individuals' personalities begin to show themselves. People struggle to assert their personal needs and goals. Some may battle for attention. As these competing personalities and individual needs clash, team members come into conflict with one another. At this early stage, the team lacks the trust necessary to truly work in unison.

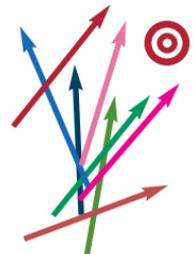
**Stage 3. Norming.** Now the team is coming into its own. The leader's standards gain acceptance by the team and the team members themselves set standards about how the team will work together. Because the uncertainty of the forming stage and the conflict of the storming stage is dying down, people feel more secure. They become more committed to the mission and one another.

**Stage 4. Performing.** At last the group has truly become a team. Performing is the stage at which the team is at its best. After what was probably a rocky start, the team is now entirely focused on the team's goal. Although there's always room for improvement, here the team is fine-tuning its ability to work together. The under-lying fundamentals are in place for the team to succeed and reach its full potential.

Team leaders need to be aware of the "forming, storming, norming, and performing" principle of team dynamics so they can provide the right support at the right time.



1 Forming



2 Storming



3 Norming



4 Performing

## L 108 LEADERSHIP WISDOM

*"Be the change you want to see in the world."*

GANDHI

*"Each person must live their life as a model for others."*

ROSA PARKS

*"A leader is a dealer in hope."*

NAPOLEON

*"Above all, do not lie to yourself."*

FYODOR DOSTOEVSKY

*"The vocation of every man and woman is to serve other people."*

LEO TOLSTOY

*"I don't mind being called tough... It's the tough guys who lead the survivors."*

GEN. CURTIS LEMAY, USAF

*"You got to be very careful if you don't know where you're going, because you might not get there."*

YOGI BERRA

*"There is no limit to what a man can do or where he can go, if he doesn't mind who gets the credit."*

RONALD REAGAN

*"Being powerful is like being a lady. If you have to tell people you are, you aren't."*

MARGARET THATCHER

*"To educate a person in mind and not in morals is to educate a menace to society."*

THEODORE ROOSEVELT

*"There are no secrets to success. It is the result of preparation, hard work, and learning from failure."*

COLIN POWELL

*"The medals don't mean anything and the glory doesn't last. It's all about your happiness."*

JACKIE JOYNER-KERSEE

*"Only those who will risk going too far can possibly find out how far one can go."*

T.S. ELIOT

*"Few men are willing to brave . . . the wrath of their society. Moral courage is a rarer commodity than bravery in battle."*

ROBERT F. KENNEDY

*"He who is greatest among you shall be your servant.' That's the new definition of greatness."*

MARTIN LUTHER KING JR.

*"Leaders aren't born, they are made. And they are made just like anything else, through hard work."*

VINCE LOMBARDI

*"I am not interested in power for power's sake, but I'm interested in power that is moral, that is right, and that is good."*

MARTIN LUTHER KING JR.

*"Only the man who knows how to obey can understand what it is to command and give orders when the spears are coming at him and his time to lead has come."*

SOPHOCLES

*"Two roads diverged in a wood, and I — I took the one less traveled by, And that has made all the difference."*

ROBERT FROST

# AEROSPACE KNOWLEDGE



## GOALS

Given an alpha-numeric designation, state that aircraft's mission.

When shown any of the aircraft photos below, identify the aircraft's alpha-numeric designation, nickname, and role.

# A 101 MILITARY AIRCRAFT

Military aircraft are known by a mix of letters and numbers that indicate the aircraft's type and its role.

- ★ Prefix letter(s) indicate the mission or type of aircraft
- ★ The number indicates the specific make and model
- ★ The suffix indicates a major design change in the series  
For example, the F-15E is a fighter, model 15, fifth major design change (the first model being the A model).

**A Attack** Attacks ground targets, usually in close air support of ground troops

**B Bomber** Attacks ground targets by dropping bombs

**C Cargo** Airlifts materiel and/or personnel

**E Electronic** Denies electronic spectrum to the enemy and protects US forces' use of the spectrum

**F Fighter** Attacks other aircraft to win air supremacy

**Hx Search & Rescue** Locates and recovers isolated personnel (first prefix only)

**xH Helicopter** Rotary wing aircraft (2nd prefix only)

**K Tanker** Provides in-flight refueling for other aircraft

**Mx Multi-Mission** Performs a number of missions, usually of a special operations nature (1st prefix only)

**O Observation** Observes & reports tactical information

**P Maritime Patrol** Operates for long durations in anti-submarine, anti-shipping, and search roles

**Q Unmanned** Operates without an onboard aircrew

**R Reconnaissance** Obtains information about an enemy

**S Anti-Submarine** Finds, tracks, and attacks submarines from the air

**T Trainer** Trains pilots, navigators, & other aircrew

**U Utility** Performs several general purpose roles (The U-2's designation is misleading; it is a reconnaissance aircraft)

**Vx Staff Transport** Airlift of high-level military and government officials (1st prefix only)

**xV VTOL** Fixed-wing aircraft that have vertical take-off and landing capability (2nd prefix only)

**W Weather** Supplies timely and accurate meteorological information

**X Experimental** Aircraft that include new technologies and are not yet proven in flight

**Y Prototype** The first model(s) of an aircraft, which are used for testing purposes

**Multi-Letter Designation.** Some aircraft have two letters in their designation, indicating that they perform multiple roles. The first letter represents the primary function. Examples:

AC-130 An attack aircraft that is based on the C-130 cargo aircraft

KC-135 A tanker aircraft that also can perform a cargo mission

FB-111 A fighter aircraft that also functioned as a bomber (retired)



**A-10 Thunderbolt II** or **Warthog** or **Hog**

Flying low and slow, Hog pilots like to be close to their work. The highly-armored A-10 is an air-to-ground specialist, a tank-killer wielding a fearsome 7-barrel Gatling gun.

Crew: 1	Weapons: 16,000 lbs of rockets, bombs, & missiles
Speed: 420 mph	Entered Service: 1977
Ceiling: 45,000 feet	



**B-1B Lancer** or **Bone** as *B-One*

Built for the Cold War, the B-1 is a long range conventional or nuclear bomber. Its swept wings allow it to fly supersonic even at tree-top level.

Crew: 4	Weapons: 75,000 lbs of bombs
Speed: 900 mph+	Entered Service: 1986
Ceiling: 30,000 feet+	



**B-2 Spirit** or **Stealth Bomber**

Stealth technology makes the B-2 nearly invisible on radar. The Spirit can penetrate the most sophisticated enemy defenses and threaten the highest-value targets.

Crew: 2 pilots	Weapons: Conventional or nuclear weapons
Max Speed: High subsonic	Entered Service: 1989
Max Ceiling: 50,000 feet+	



**B-52 Stratofortress** or **Buff**

Conceived as a long-range nuclear bomber, the Buff has evolved since 1954. Today it's capable of strategic bombing, flying close-air support, or launching cruise missiles.

Crew: 5	Weapons: 70,000 lbs of bombs, mines, or cruise missiles
Speed: 650 mph	Entered Service: 1954
Ceiling: 50,000 feet+	



## C-5 *Galaxy*

The Air Force's largest aircraft, the Galaxy can airlift huge quantities of troops, supplies, or even other aircraft. With aerial refueling, its range is limited only by crew endurance.

Crew: 7

Max Speed: 500 mph+

Max Cargo: 270,000 lbs

Range: 6,300 miles

without refueling

Entered Service: 1969



## C-17 *Globemaster III*

The C-17 is the Air Force's newest and most flexible airlifter. It can deliver heavy cargo to small, austere airfields, drop paratroops, and evacuate the wounded.

Crew: 3

Max Speed: 450 mph

Max Cargo: 170,000 lbs

Range: 5,200 miles with-  
out refueling

In Service Since: 1993



## C-130 *Hercules* & EC-130 HC-130 MC-130 OC-130 WC-130

In its purest form, the 130 provides tactical airlift. It can also conduct electronic warfare, weather operations, close air support, clandestine operations, refueling, and more.

Crew: Varies

Max Speed: 370 mph+

Max Cargo: 42,000 lbs

Range: 1,500 miles  
without refueling

In Service Since: 1959



## KC-10 *Extender*

The Extender is an advanced tanker and cargo aircraft. Its specialty is aerial refueling of fighters while airlifting the fighters' support personnel and supplies.

Crew: 4

Max Speed: 620 mph

Max Fuel: 356,000 lbs

Airframe: Boeing DC-10

In Service Since: 1981



**KC-135 *Stratotanker*** ALSO: OC-135 RC-135 WC-135

For more than 50 years, the KC-135 has been America's dominant tanker. The 135 is also used as an airborne command post, for

**Crew:** Varies                      **Airframe:** Boeing 707  
**Max Speed:** 530 mph        **In Service Since:** 1956  
**Max Fuel:** 200,000 lbs



**E-3 *Sentry* or *AWACS***

The E-3 is an airborne warning and control system, or AWACS. It provides an accurate, real-time picture of the battle space and advance warning of enemy actions.

**Crew:** 4 aviators plus  
 13-19 mission specialists      **Distinguishing Feature:**  
 Rotating radar dome  
**Cruise:** 360 mph              **In Service Since:** 1978



**E-4B *National Airborne Operations Ctr.***

The E-4B serves as the National Airborne Operations Center for the president. In a national emergency, the E-4B acts as a command and control center for US forces.

**Crew:** Up to 112              **Airframe:** Boeing 747  
**Max Speed:** 600 mph      **Key Fact:** At least one  
**In Service Since:** 1980      E-4B is always on alert.



**E-8C *Joint STARS***

The E-8C is the Joint Surveillance Target Attack Radar System. It provides ground surveillance to help warfighters' target and attack efforts.

**Crew:** 4 aircrew, plus 15  
 AF and 3 Army specialists      **Airframe:** Boeing 707  
**Payload:** Electronic  
 equipment and crew          **Max Speed:** 590 mph  
**In Service Since:** 1997



## F-15 Eagle F-15E Strike Eagle

The F-15 is an all-weather tactical fighter for gaining and maintaining air supremacy. The E-model, *Strike Eagle*, performs air-to-ground as well as air-to-air missions.

Crew: 1; *Strike Eagle*: 2

Max Speed: Mach 2.5+

Ceiling: 65,000 ft

In Service Since: 1975, 1989

Of Note: World's best 4th generation fighter, dominating the 1970s-2000s.



## F-16 Falcon or Fighting Falcon or Viper

The F-16 is a relatively small, compact, highly-maneuverable, low-cost fighter. It has grown beyond its air-to-air mission to become a multi-role fighter.

Crew: Usually 1

Max Speed: Mach 2.0+

Ceiling: 50,000 ft+

In Service Since: 1979

Of Note: The *Air Force Thunderbirds* fly the F-16 because it is so agile.



## F-22 Raptor

Combining stealth, supercruise, maneuverability, and integrated avionics, the F-22 is the world's most lethal 5th generation fighter. *Raptors* fly air-to-air and air-to-ground missions.

Crew: 1

Max Speed: Mach 2.0+

Ceiling: 50,000 ft+

In Service Since: 2005

Key Fact: Supercruise allows it to fly Mach 1+ without afterburners.



## F-35 Lightning II or Joint Strike Fighter

The F-35 is planned to replace the A-10, A/V-8, F-15, F-16, and F/A-18 as NATO's all-purpose ground attack, reconnaissance, and air defense stealth fighter. Not yet in service.

Crew: 1

Max Speed: Mach 1.8+

Armament: Air-to-air and air-to-ground weapons

Variants: B-model has VTOL for Marines; C-model is carrier-based



### HH-60G *Pave Hawk*

One of the few helicopters in the Air Force inventory, the *Pave Hawk* flies in hostile environments with Air Force pararescuemen to recover isolated personnel.

**Crew:** 2 pilots, 1 flight engineer, 1 gunner  
**Max Speed:** 185 mph  
**Ceiling:** 14,000 ft

**Range:** 500 miles  
**In Service Since:** 1982  
**Key Fact:** Highly modified Army Black Hawk



### MQ-1B *Predator*

The *Predator* is a long-endurance, unmanned aircraft system. Its primary mission is close air support and ISR - intelligence, surveillance, and reconnaissance.

**Crew:** 2 remote (pilot & sensor operator)  
**Max Speed:** 135 mph  
**Ceiling:** 25,000 ft

**In Service Since:** 2005  
**Armament:** Two laser-guided AGM-114 *Hellfire* missiles



### MQ-9 *Reaper*

The *Reaper* is a long-endurance, unmanned aircraft system. Its primary mission is close air support and ISR - intelligence, surveillance, and reconnaissance.

**Crew:** 2 remote (pilot & sensor operator)  
**Max Speed:** 235 mph  
**Ceiling:** 50,000 ft

**In Service Since:** 2007  
**Armament:** AGM-114 *Hellfire* missiles, GBU-12 *Paveway II* bombs and more



### T-6A *Texan II*

The *Texan* is a single-engine, two-seat, primary trainer used to train Air Force and Navy pilots. After graduating, most *Texan* pilots move on to the T-1A or T-38.

**Crew:** 2 (pilot & instructor)  
**Max Speed:** 320 mph  
**Ceiling:** 31,000 ft

**In Service Since:** 2000  
**Airframe:** Raytheon's Beech/Pilatus PC-9 Mk 11.



## T-38 *Talon*

The *Talon* is a twin-engine, high-altitude, supersonic jet trainer used to train fighter pilots. It has aerobatics, formation, night, instrument, and cross-country capability.

Crew: 2 (pilot in front  
with instructor pilot aft)  
Max Speed: Mach 1.1

Ceiling: 55,000 ft+  
In Service Since: 1961



## U-2S *Dragonlady*

The *U-2* is a high-altitude, all-weather surveillance and reconnaissance aircraft. The *U-2*'s photos of Soviet missiles in Cuba touched-off the Cuban Missile Crisis of 1962.

Crew: 1  
Max Speed: 410 mph+  
Ceiling: 70,000 ft+  
In Service Since: 1956

**Of Note:** During landing, a second pilot "chases" the *U-2* in a sports car, radioing instructions to the pilot.



## UH-1N *Iroquois* or *Huey*

The *UH-1* is an extremely versatile and successful light-lift helicopter used by all four armed services. It can fly airlift, evacuation, close air support, and other missions.

Crew: 2 or 3  
Max Speed: 150 mph  
Ceiling: 15,000 ft

Airframe: Bell 212  
In Service Since: 1959



## VC-25 *Air Force One*

The *VC-25*'s mission is to provide secure transport and support to the President. This modified Boeing 747 is arguably the most recognizable aircraft in the world.

Crew: 26  
Passengers: 102 max  
Max Speed: 630 mph

Airframe: Boeing 747-200  
In Service Since: 1990  
(present model)



**Manufacturer:**  
Cessna, USA

**Crew:** varies, 4 max; pilot, observers, scanners, cadets

**Engine:** Lycoming 4 cyl., usually 180 hp

**Never Exceed Speed:**  
163 kts / 188 mph

**Cruise Speed:**  
110 kts / 126 mph

**Stall Speed:**  
47 kts / 54 mph

### C-172 *Skyhawk*

With over 43,000 delivered, the *Skyhawk* is the best-selling, most-flown airplane ever. In CAP, it is used for orientation flights, cadet flight training, and to a lesser extent, search and rescue, due to its fairly light useful load.

**Useful Load:** 800 lbs.

**Ceiling:** 13,000 ft

**Range:** 520 nm

**Endurance:** 3.5 hrs with 1 hr reserve

**Propeller:** 2-blade, fixed-pitch

**CAP Fleet:** 200+

**In Service Since:** 1956



**Manufacturer:**  
Cessna, USA

**Crew:** varies, 4 max; pilot, observers, scanners, cadets

**Engine:** Lycoming 6 cyl., usually 230 hp

**Never Exceed Speed:**  
175 kts / 201 mph

**Cruise Speed:**  
125 kts / 144 mph

**Stall Speed:**  
49 kts / 56 mph

### C-182 *Skylane*

The *Skylane* is a “high performance” single-engine aircraft. CAP uses it for search and rescue, orientation flights, mountain flying, and special missions such as satellite digital imagery (SDIS) and Surrogate Predator.

**Useful Load:** 1,100 lbs.

**Ceiling:** 15,000 ft

**Range:** 630 nm

**Endurance:** 4 hrs with 1 hr reserve

**Propeller:** 2- or 3-blade, constant speed

**CAP Fleet:** 250+

**In Service Since:** 1956



**Manufacturer:**  
Gippsland, Australia

**Crew:** varies, 8 max; pilot, observers, scanners

**Engine:** Lycoming 6 cyl., usually 310 hp

**Never Exceed Speed:**  
186 kts / 214 mph

**Cruise Speed:**  
118 kts / 136 mph

**Stall Speed:**  
56 kts / 64 mph

### GA-8 *Airvan*

This Australian-built, high-performance aircraft can carry up to eight people or a 1700lb useful load. CAP acquired the GA-8 specifically to serve as a platform for aerial imaging or “ARCHER” missions.

**Useful Load:** 1,700 lbs.

**Ceiling:** 13,500 ft

**Range:** 730 nm

**Endurance:** 4 hrs with 1 hr reserve

**Propeller:** 2- or 3-blade, constant speed

**CAP Fleet:** 16

**In Service Since:** 1995



**Manufacturer:**  
deHavilland, Canada  
**Crew:** 1 pilot  
**Passengers:** 7 max  
**Engine:** Pratt & Whitney  
9 cyl. radial, 450 hp

**Maximum Speed:**  
137 kts / 158 mph  
**Cruise Speed:**  
126 kts / 145 mph  
**Stall Speed:**  
52 kts / 60 mph

## DHC-2 *Beaver*

For search-and-rescue missions over Alaska's unforgiving terrain, CAP relies upon the deHavilland *Beaver*, a Canadian-built, STOL-capable "bush plane" that can be equipped with skis or floats.

**Useful Load:** 2,100 lbs.  
**Ceiling:** 18,000 ft  
**Range:** 455 nm  
**Endurance:** 5.0 hrs with  
1 hr reserve

**Propeller:** 3-blade,  
constant speed  
**CAP Fleet:** 9  
(Alaska Wing only)  
**In Service Since:** 1948



**Manufacturer:**  
Maule, USA  
**Crew:** 1 pilot  
**Passengers:** 3 max  
**Engine:** Lycoming 6 cyl.,  
235 hp

**Maximum Speed:**  
174 kts / 200 mph  
**Cruise Speed:**  
139 kts / 160 mph  
**Stall Speed:**  
35 kts / 40 mph

## M-7-235 *Super Rocket*

CAP uses Maule's *Super Rocket* "bush plane" to tow gliders for cadet orientation flights. The Maule's rate of climb is roughly twice that of a C-172's capability, making it an economical tow plane.

**Useful Load:** 835 lbs.  
**Ceiling:** 20,000 ft  
**Range:** 475 nm  
**Endurance:** 4 hrs with  
1 hr reserve

**Propeller:** 2-blade,  
constant speed  
**CAP Fleet:** 5  
(phasing-out of CAP fleet)  
**In Service Since:** 1984



**Manufacturer:**  
LET, Czech Republic  
**Crew:** 1 or 2  
**Engine:** None

**Never Exceed Speed:**  
127 kts / 146 mph  
**Stall Speed at Max  
Weight:** 38 kts / 44 mph

## L-23 *Blanik*

This all-metal, high-wing glider comes from the Czech Republic. With its tandem seating (cadet in front, instructor aft), the L-23 is an excellent platform for glider orientation flights or flight instruction.

**Ceiling:** 20,000 ft  
**Range:** Depends on  
soaring conditions

**CAP Fleet:** 20  
**In Service Since:** 1956

## A 102 AEROSPACE CAREERS

What career opportunities are available in aerospace? Is the field right for you? Consider these questions:

Do you enjoy math and science?

Do you have an inquisitive and searching mind?

Are you interested in knowing what makes things work?

Do you like to solve problems and puzzles?

Do you like to create things?

Do you enjoy working with computers?

Are you prepared to study hard and do homework?

Do you achieve good grades?

If you answered yes to most questions, an aerospace career could be right for you. A math and science background will be essential, even for the trades, so take lots of those classes at school. Some careers to consider include:

### ENGINEERING

aeronautical engineer  
 cyber defense engineer  
 robotics / mechanical engineer  
 human factors engineer

### ALLIED SCIENCES

flight surgeon  
 meteorologist  
 technical writer  
 safety analyst

### FLYING

professional pilot  
 flight attendant  
 air traffic controller  
 flight paramedic

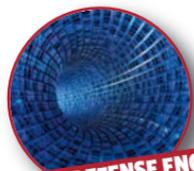
### TRADES

avionics technician  
 airframe & powerplant mechanic  
 aircraft fabrication technician  
 drafting and design specialist

### FLIGHT PARAMEDIC



### A&P MECHANIC



### CYBER DEFENSE ENGINEER



### AERO ENGINEER



### AIR TRAFFIC CONTROLLER

### AIRLINE PILOT



## GOAL

Identify the major parts of an aircraft and explain their function

Identify the 4 forces of flight

Identify the 3 axes of an aircraft and their associated maneuvers

## A 103 BASIC ANATOMY of an AIRCRAFT



C-17 Globemaster III

**Aileron.** Movable control surface that makes the aircraft bank or roll

**Elevator.** Movable control surfaces that make the aircraft climb or descend

**Empennage.** The aircraft's tail assembly

**Flap.** Moveable control surface that helps the aircraft gain or lose lift

**Fuselage.** The main body of the aircraft

**Horizontal Stabilizer.** A fixed-wing portion of the empennage that helps provide stability against pitch (nose up and down)

**Leading Edge.** The front part of a wing or airfoil

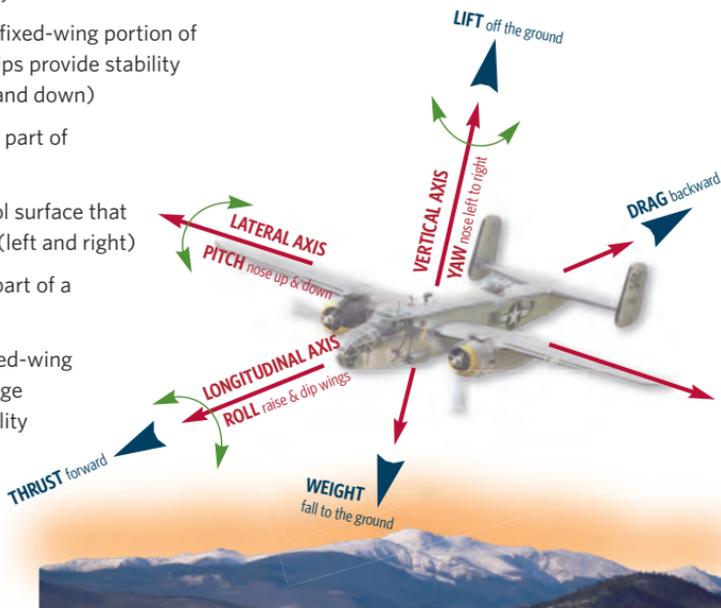
**Rudder.** Movable control surface that makes the aircraft yaw (left and right)

**Trailing Edge.** The rear part of a wing or airfoil

**Vertical Stabilizer.** A fixed-wing portion of the empennage that helps provide stability against yaw

**Winglet.** The bent-upward, end portion of a wing that reduces drag

## FOUR FORCES of FLIGHT THREE AXES of an AIRCRAFT



## A 104 BASIC ANATOMY of an INSTRUMENT PANEL



The “Glass Cockpit” of a C-172 *Skyhawk*

**Airspeed Indicator.** Displays the aircraft’s speed, relative to the surrounding air

**Altimeter.** Measures air pressure, displaying the aircraft’s height above sea level

**Attitude Indicator.** Shows the aircraft’s attitude relative to the horizon; sometimes known as the “artificial horizon”

**Course Deviation Indicator.** An avionics instrument used to help the pilot navigate

**Flap Controller.** A device for raising and lowering the aircraft’s flaps

**Mixture Control.** Regulates the amount of fuel available to the carburetor

**Multi-Function Display.** Similar to the primary flight display, the MFD also includes a moving map and engine instrumentation dis-

plays

**Primary Flight Display.** A modern, electronic instrument that displays airspeed, attitude, altitude, vertical velocity, heading, and turn coordination information

**Tachometer.** An engine instrument that displays the engine’s speed, in revolutions per minute

**Throttle.** Controls engine speed by regulating the flow of fuel and air into the engine

**Turn Coordinator.** Displays the direction and rate of a turn

**Vertical Velocity Indicator.** Displays a rate of change in altitude

**Yoke.** The device used for piloting the aircraft; it manipulates the control surfaces

## A 105 IMAGINE a DAY WITHOUT SPACE



Stock markets could not operate normally, wreaking havoc with the economy

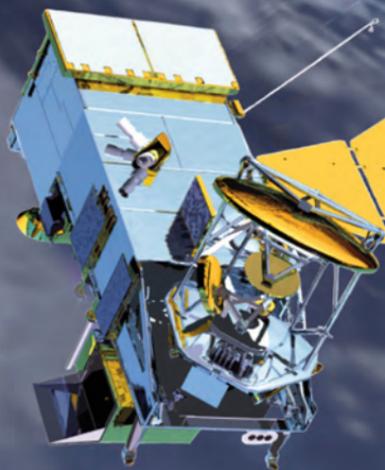


Internet, phone, and TV communications could cease

Aircraft navigation would be greatly impacted



Farming equipment could not operate 24/7



## GOAL

Name three things that would happen if the US lost its space supremacy.

Missile warning systems would go offline, making war more likely



America's national defense, economic security, and modern lifestyle is

**IMPOSSIBLE** *without*  
**SPACE**  
**SUPREMACY.**

Credit card machines at the pump would not work



Cargo ships would have to be unloaded manually



Severe weather would hit us with little warning, injuring and even killing people



## CAREER OPPORTUNITIES *in* SPACE

satellite operators  
launch specialists  
astro engineers  
imaging specialists

solar engineers  
propulsion engineers  
program managers  
technical writers

oceanographers  
computer scientists  
mathematicians  
astronauts

## GOALS

Name the 8 qualities of airpower.

Explain what each quality of airpower means, in your own words.

# A 106 AEROSPACE POWER

*Air power has become predominant, both as a deterrent to war, and—in the eventuality of war—as the devastating force to destroy an enemy’s potential and totally undermine his will to wage war.*

GENERAL OMAR BRADLEY

## What makes aerospace power unique compared to ground and naval capabilities?

**Perspective.** The elevation and extent of air and space provides a broader field of view than what is visible from the surface. An aircrew sees more from a perch of 30,000 feet than does a foot soldier on the ground.

**Range.** Air and space platforms have access to any point on the earth’s surface. They are not restricted by the topography of the land or the shores of the oceans. Battleships cannot fight in the desert. Tanks cannot fight on the ocean. But air and space weapons can attack anywhere.

**Speed.** Air and space systems are faster than trucks or ships. The elevation of air and space platforms allows them to fly over ground and water obstacles directly to their destination. The F-22 *Raptor*, for example, can fly faster than sound even without using its afterburners.

**Maneuverability.** The elevation and extent of air and space allows air and space platforms to operate in three dimensions. Troops and fleets can turn left or right, or go forward or backward. Aircraft can do that, plus climb and descend.



**Perspective.** A big picture view of Hurricane Isabel, as seen from the International Space Station.



**Speed.** An F/A-18 breaking the sound barrier.



**Maneuverability.** One of the Thunderbirds flying at an odd attitude.

**Mobility.** Mobility is the ability of military forces to move from one place to another. Air and space forces with their inherent range and speed have greater mobility than surface forces. Aircraft can fly across the globe in a few hours' time, while armies and navies take weeks to make the same journey.

**Responsiveness.** Responsiveness is the ability of military forces to accomplish an assigned task quickly. The perspective, range, speed, and maneuverability of air and space forces makes them highly responsive. An army's or navy's siege upon an enemy stronghold can take months to complete, while a single aircraft might defeat a fortified enemy with a single bomb.

**Flexibility.** Flexibility is the ability of military forces to accomplish a wide range of tasks. Air and space forces can be brought to bear against military, economic, and social structures instantaneously or separately. The C-130 Hercules, for example, can airdrop troops behind enemy lines, serve as an aerial observation post, evacuate wounded troops to safety, or rush humanitarian supplies to an isolated village.

**Versatility.** Versatility is the ability to accomplish strategic, operational, and tactical level objectives. Airpower can handle big jobs and small jobs. It might fly over a forest to look for fires (a tactical objective), or fly from Missouri to Iraq and back to attack a high-value target (a strategic objective).

★ **Whoever controls the air generally controls the surface.**

★ **Airpower is primarily an offensive weapon. "The bomber will always get through."**

★ **Airpower should be controlled by airmen. The air force should be independent of the army and navy.**

★ **Airpower should focus on strategic targets, not mere support to surface forces.**



*Responsiveness.* A nuclear missile travels at 15,000 mph and can strike a target on the opposite side of the globe in just 30 minutes.



*Flexibility.* A C-130 can be equipped to fight forest fires (top photo), or as a flying gunship with cannons and a howitzer (immediately above).



## VOYAGE TO THE MOON

by ARCHIBALD MACLEISH

PRESENCE among us,  
wanderer in our skies,  
dazzle of silver in our leaves and on our  
waters silver,

O  
Silver evasion in our farthest thought –  
“the visiting moon” . . . “the glimpses of the moon”  
and we have touched you!

From the first of time,  
before the first of time, before the  
first men tasted time, we thought of you.  
You were a wonder to us, unattainable,  
a longing past the reach of longing,  
a light beyond our light, our lives – perhaps  
a meaning to us . . .

Now  
our hands have touched you in your depth of night.

Three days and three nights we journeyed,  
steered by farthest stars, climbed outward,  
crossed the invisible tide-rip where the floating dust  
falls one way or the other in the void between,  
followed that other down, encountered  
cold, faced death – unfathomable emptiness . . .

Then, the fourth day evening, we descended,  
made fast, set foot at dawn upon your beaches,  
sifted between our fingers your cold sand.

We stand here in the dusk, the cold, the silence . . .

and here, as at the first of time, we lift our heads.  
Over us, more beautiful than the moon, a  
moon, a wonder to us, unattainable,  
a longing past the reach of longing,  
a light beyond our light, our lives – perhaps  
a meaning to us . . .

O, a meaning!  
over us on these silent beaches the bright  
earth,  
presence among us.

### A 107 POEM

On July 21, 1969, *The New York Times*  
printed this poem on its front page under  
the mammoth headline,

### MEN WALK ON MOON

#### GOAL

Simply enjoy a great poem.

PART  
4

# CAP HISTORY & CADET LORE



## GOALS

Identify CAP's birthdate.

Identify the Cadet Program's birthdate.

Identify at least 3 CAP missions of WWII.

## H 101 CAP's WWII HISTORY

On the eve of WWII, under the leadership of Gill Robb Wilson, air-minded citizens began organizing a civil air patrol to use America's civilian aviation resources, in case the United States was drawn into World War II.

On **December 1, 1941**, the Civil Air Patrol was born upon the promulgation of the Office of Civil Defense's Administrative Order #9, signed by Fiorello LaGuardia, former mayor of New York City.

Many of the CAP volunteers were senior citizens, women, and disabled persons who, despite being unqualified for military service, nevertheless wanted to contribute to the war effort.

The organization sought out many dangerous missions including anti-submarine patrols, border patrols, courier services, and target towing for naval gunnery practice.

One year after its formal inception, CAP officially broadened its mission to include a Cadet Program on **1 October 1942**.

During World War II CAP's coastal patrol flew 24 million miles, found 173 enemy U-boats, attacked 57, hit 10 and sank two, dropping a total of 83 bombs and depth charges throughout the conflict. By the end of the war, 64 CAP members, including 1 cadet, lost their lives in the line of duty.

(Right) A CAP aircrew readies for a coastal patrol mission. Notice the bomb by the man at the left. (Far Right) A practice bomb used by CAP aircrews during the war.



## CIVIL AIR PATROL COASTAL PATROL BASES *during* WORLD WAR II



### WWII-Era Ribbons for Special Missions



Anti-Submarine  
Coastal Patrol



Southern Liaison  
(Mexican Border)  
Patrol



Tow Target  
(for naval gunnery  
practice)



Courier



Forest Patrol



Missing Aircraft

(Above, Left) A map showing locations of the 20 CAP Coastal Patrol Bases during WWII. (Above, Right) CAP emblems used during the war. (Right) Eddie Edwards and Hugh Sharp receive Air Medals for a rescue mission from President Franklin Roosevelt.

## H 102 CAP TRIVIA

When asked why the Nazis stopped sending U-boats to patrol the U.S. coast, a captured Nazi skipper replied, "Those damn yellow planes!"



Meinhardt Raabe, the Munchkin Coroner from *The Wizard of Oz*, wanted to fly for the Air Force but was too short, so he joined CAP. During WWII, Raabe proudly flew reconnaissance missions as CAP's smallest pilot.

Cadet achievement ribbons had cartoon-like pictures on them until the cadets voted them off.



Ten percent of all U.S. Air Force Academy cadets got their start in CAP.

The CAP National Headquarters building used to serve as Maxwell AFB's hospital. What is today the employee break room used to be the morgue.



CAP has been featured in popular culture several times including the film *Solo*, the TV series *Dynasty*,

the Dale Brown novel *A Time for Patriots*, and the *Smilin' Jack* comic.



CAP once had a uniformed bagpipe band, kilts and all. The renown musical group performed for President Carter's inauguration.





## H 103 COMIC

*Smilin' Jack* was a popular comic that was syndicated throughout the US during the 1940s. When author / artist Zack Mosley joined CAP during WWII, he naturally had his hero, "Smilin' Jack," join, too.

## GOALS

Be able to identify each of the 13 aerospace pioneers by name, photo, or ribbon, and explain what each pioneer is known for.

# H 104 The CADET PROGRAM'S AEROSPACE PIONEERS

Since 1942, young people have been serving their communities and developing into responsible citizens through Civil Air Patrol.

But in 1964, CAP leaders decided it was time to reorganize the Cadet Program and begin a new curriculum. To add credibility to their important work and help inspire America's next generation of pilots, engineers, mechanics, and aviation enthusiasts, CAP named cadet achievements and awards in honor of the pioneers listed below.



ACHIEVEMENT 1

**John F. Curry**

Major General, US Army Air Corps

First National Commander of Civil Air Patrol and a strong advocate for female aviators and general aviation.



ACHIEVEMENT 2

**Hap Arnold**

General of the Air Force

Commander of US Army Air Forces during WWII and advocate for strategic bombardment and an independent air force.



ACHIEVEMENT 3

**Mary Feik**

Colonel, Civil Air Patrol

Pioneer aviation mechanic and engineer who led flight tests of bomber, fighter, attack, cargo, and other military aircraft.



PHASE I MILESTONE AWARD

**Orville & Wilbur Wright**

Inventors

First men to achieve powered, controlled, sustained, heavier-than-air flight, on December 17, 1903, in Kitty Hawk, NC.



ACHIEVEMENT 4

**Eddie Rickenbacker**

Captain, US Army Air Corps

America's "Ace of Aces" during WWI, Medal of Honor recipient, and in civilian life, longtime head of Eastern Airlines.



ACHIEVEMENT 5

**Charles Lindbergh**

Brigadier General, US Army Air Corps

First man to fly across the Atlantic Ocean solo, non-stop, aboard the "Spirit of St. Louis." Medal of Honor recipient.



ACHIEVEMENT 6

**Jimmy Doolittle**  
General, US Air Force

Legendary aeronautical engineer and leader of the Raid on Tokyo during WWII, one of the gutsiest air raids of all time. Medal of Honor recipient.



ACHIEVEMENT 7

**Dr. Roberty H. Goddard**  
Physicist

The "father of modern rocketry" and developer of the world's first liquid-fueled rocket; a NASA laboratory is named in his honor.



ACHIEVEMENT 8

**Neil Armstrong**  
Astronaut

First man to set foot upon the Moon, on July 20, 1969. "That's one small step for a man, one giant leap for mankind."



PHASE II MILESTONE AWARD

**Billy Mitchell**  
Brigadier General, US Army Air Corps

America's first vocal advocate for military airpower, he proved the airplane could sink ships. Court-martialed for his outspokenness, was posthumously awarded a Medal of Honor.



PHASE III MILESTONE AWARD

**Amelia Earhart**  
Aviator

Record-setting female aviator who was tragically lost at sea in the Pacific Ocean while attempting to fly around the world.



PHASE IV MILESTONE AWARD

**Ira C. Eaker**  
General, USAF

Staunch advocate for strategic bombardment during WWII. He commanded "The Mighty Eighth" (8th Air Force).



THE CAP CADET PROGRAM'S ULTIMATE AWARD

**Carl A. Spaatz**  
General, USAF

Staunch advocate for strategic bombardment during WWII, holder of numerous aviation records including keeping his aircraft, "The Question Mark," aloft for 150 hours with help from Ira Eaker and Pete Quesada. First Chief of Staff of the U.S. Air Force and later, in civilian life, first Chairman of the CAP National Board.

*"In our victory over Japan, airpower was unquestionably decisive. That the planned invasion of the Japanese Home islands was unnecessary is clear evidence that airpower has evolved into a force in war co-equal with land and sea power, decisive in its own right and worthy of the faith of its prophets."*

**GOAL**

Name at least 5 former cadets of distinction and describe their achievements.

## H 103 ALUMNI of HONOR

Over 1 million young people have worn the CAP cadet uniform since the Cadet Program was founded in 1942. Countless thousands have grown into “dynamic Americans and aerospace leaders.” Profiled here are a mere 10 former cadets who are especially worthy of recognition.



**Eric Boe** GEORGIA

Air Force colonel, test pilot, and astronaut. Piloted the Space Shuttle *Endeavor* (STS-126) and on its final mission, *Discovery* (STS-133). Spaatz Award recipient.



**Kim Campbell** CALIFORNIA

USAF Academy cadet wing commander and Marshall Scholar. After a successful mission over Iraq, her A-10 received heavy battle damage but she made an amazing and heroic landing.



**Wayne Fisk** ALASKA

Declined USAF Academy appointment to care for terminally ill mom. Legendary Pararescue-man and recipient of two Silver Stars for gallantry in action and over 80 other medals.



**Shawna Rochelle Kimbrell** COLORADO

The Air Force's first black female fighter pilot. Over 170 combat hours in the *Falcon*. Air Force Academy graduate. “I was never apprehensive about pursuing my dream.”





### Nicole Malachowski NEVADA

First female *Thunderbird* pilot. As White House fellow, helped the WWII-era Womens' Airforce Service Pilots (WASP's) be recognized with a Congressional Gold Medal.



### Scott O'Grady WASHINGTON

F-16 driver shot-down while enforcing the no-fly zone over Bosnia. Evaded capture for six days, subsisting on leaves, grass, and bugs. *Behind Enemy Lines* is based on his story.



### Shane Osborn NEBRASKA

Naval aviator flying the EP-3E reconnaissance aircraft when a Chinese fighter collided with his aircraft. Made amazing emergency landing. Held captive and interrogated in China for 10 days.



### Doug Roach MICHIGAN

CAP's first Spaatz Award recipient. Went on to fly F-4s during Vietnam and with the *USAF Thunderbirds*. Professional staff member serving the House of Representatives' Armed Services Committee.



### Michael Ryan NEBRASKA

First former cadet to earn 4-star rank and to serve as the Air Force Chief of Staff, the Service's 18th. Directed NATO air campaign in Bosnia, which led to the Dayton Peace Accords.



**WILL YOUR NAME  
BE LISTED HERE ONE DAY?**

THE NEGATIVE  
EFFECTS OF NICOTINE  
HIT THE BRAIN  
WITHIN 10 SECONDS



# FORMALDEHYDE



FORMALDEHYDE IS USED TO PRESERVE DEAD THINGS.  
IT'S ALSO FOUND IN CIGARETTE SMOKE. MAKES SENSE, NO?





## **I respect myself**

That is, until I saw myself get high

It's just an ugly side of myself I didn't recognize

Saying and doing things that were not myself

I barely recognized myself



[abovetheinfluence.com](http://abovetheinfluence.com)





**"This is our island. It's a good island."**

WILLIAM GOLDING, *Lord of the Flies*

**INTEGRITY  
SERVICE  
EXCELLENCE  
RESPECT**



**CIVIL AIR PATROL**

CAPP 52-25 *Cadet Encampment Handbook*

June 2014